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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/781,385 | 02/18/2004 | Richard O. Ruhr | E14.2-11416-US01 | 1927 |
| 490 | 7590 | 09/05/2006 | EXAMINER | |
| VIDAS, ARRETT & STEINKRAUS, P.A. 6109 BLUE CIRCLE DRIVE SUITE 2000 MINNETONKA, MN 55343-9185 | | | LANG, AMY T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1714 | |

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/781,385 | RUHR ET AL. | |
| | Examiner | Art Unit | |
| | Amy T. Lang | 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☒ Claim(s) 2,30,20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/30/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 2 and 30 are objected to because of the following informalities: claims 2 and 30 define R as C₈-C₂₀. Such a definition is meaningless since R appears to be a monovalent functional group which is being improperly described as "C₈-C₂₀." Applicant is advised that any correction to remedy this deficiency must be supported by the original disclosure.

2. Claim 20 is objected to because of the following informalities: claim 20 discloses where an ether diamine is selected from the group including the formula R₁-O-R₂-NH₂. However, this formula is not a diamine. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-5, 9-13, 15-18, 26, 27-32, 35-40, 42-44, 46-52, 57-60, 64, and 66-69 are rejected under 35 U.S.C. 102(b) as being anticipated by Theyssen (US 5,935,914).

Theyssen discloses a conveyor belt lubricant comprised of ether carboxylates with the formula R¹-(O(CH₂)_m)_nOCH₂COO⁻M⁺, where R¹ is a linear or branched C₁-C₂₂ alkyl or alkenyl group, m is 2 or 3, n is positive number from 1 to 30, and M is hydrogen

Art Unit: 1714

or an alkali metal (column 1, lines 5-9; column 5, lines 3-22). Therefore, when m of the ether carboxylate disclosed by Theyssen is 2, this compound clearly overlaps the instantly claimed ether carboxylate. Furthermore, Theyssen specifically discloses the R^1 group as an oleyl, which overlaps the instantly claimed range of C_{16} to C_{18} (column 12, lines 36-66). In the ether carboxylate formula disclosed by Theyssen, n represents the repeat units of $O(CH_2)_m$, which is equivalent to the moles of ethoxylation ($m=2$) or propoxylation ($m=3$). Therefore, when m is equal to 2, the ether carboxylate has 1 to 30 moles of ethoxylation, since n is disclosed as 1 to 30. When m is equal to 3, the ether carboxylate has 1 to 30 moles of propoxylation.

The conveyor lubricant comprises the ether carboxylate in an amount from 1 to 6 wt% (column 15, lines 16-22). The total lubricating composition is diluted with water with a dilution factor of 300 to 500, or 0.02 to 80% vol/vol (column 16, lines 39-45). Therefore, when the lubricating composition is diluted with water by to 10% vol/vol, it is diluted to a concentrate of 10 wt% of lubricant in water.

Theyssen also discloses additives in the lubricating composition including a foam inhibitor, which clearly overlaps the instantly claimed foam destabilizer, a corrosion inhibitor, biocides, which encompass antimicrobial agents, and alkoxylated alcohols (column 14, lines 33-46). Although Theyssen does not specifically disclose the alkoxylated alcohols as foam destabilizers, they would inherently act like such in a lubricating composition.

The lubricant composition disclosed by Theyssen is used to lubricate a belt conveyor by a sprayer system (column 17, lines 34-40). Therefore, a method of lubricating the interface between a container and conveyor surface is disclosed.

4. Claims 1-4, 9, 10, 15-18, are 26-29 rejected under 35 U.S.C. 102(e) as being anticipated by Abe (2004/037960 A1).

Abe discloses an aqueous conveyor lubricant comprised of ether carboxylates (page 1, lines 5-10; page 5, lines 34-35). The average degree of ethoxylation of the ether carboxylates is disclosed from 0.3 to 15 (page 4, lines 23-28). The ether carboxylates are further disclosed as having the formula $R-(OCH_2CH_2)_n-OCH_2COO-X$, where R is an alkyl group having 12 to 22, preferably 16 to 18, carbon atoms, n is from 0.3 to 15, and X is hydrogen (page 4, line 30 through page 5, line 7). Therefore, this formula disclosed by Abe clearly overlaps the instantly claimed ether carboxylate. Abe also teaches that X may be sodium or potassium, which are alkali metals, when describing how the ether carboxylates useful in the invention are produced (page 5, lines 16-32).

The lubricant composition comprises the ether carboxylates in an amount from 0.1 to 30 wt%, preferably 1 to 20 wt% (page 6, lines 1-6). Abe also discloses additives in the lubricating composition including a foam inhibitor, which clearly overlaps the instantly claimed foam destabilizer, a corrosion inhibitor, biocides, which encompasses antimicrobial agents, and surfactants (page 6, lines 8-14). The total lubricating composition is diluted with water to a concentrate of 0.01 to 2 wt% (page 6, lines 20-27).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914).

Theyssen, as discussed in paragraph 3 and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates of the formula $R^1-(O(CH_2)_m)_nOCH_2COO^-M^+$, where R^1 is a linear or branched C_1 - C_{22} alkyl or alkenyl group, m is 2 or 3, n is positive number from 1 to 30, and M is hydrogen or an alkali metal (column 1, lines 5-9; column 5, lines 3-22). Therefore, since n , as disclosed by Theyssen, encompasses the instantly claimed range of 6 to 18, it would have been obvious for Theyssen to use these specific values for the integer n .

Art Unit: 1714

8. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Behler (US 4,894,485).

Theyssen, as discussed in paragraph 3 and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates with 1 to 30 moles of ethoxylation or propoxylation.

Theyssen does not disclose the mixture of using both ether carboxylates that are ethoxylated and propoxylated.

Behler discloses an ether carboxylate formed by ethylene oxide or propylene oxide or by the mixture of ethylene oxide and propylene oxide (column 2, lines 23-61). This corresponds to the ether carboxylate as being ethoxylated, propoxylated, or both. Therefore, Behler teaches the mixture of both ethoxylated and propoxylated ether carboxylates.

Since Theyssen discloses either ethoxylated or propoxylated ether carboxylates, each from 1 to 30 moles, and Behler teaches that it is known in the art to combine them both in a mixture, it therefore would have been obvious for Theyssen to use a combination of the two in the lubricating composition. Furthermore, since Theyssen independently teaches the mole range of each from 1 to 30, it would have been obvious for Theyssen to also use the combination with 15 moles of ethoxylated ether carboxylates and 2 to 10 moles propoxylated ether carboxylates.

9. Claims 19-21, 23, 24, 41, 56, 65, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Person Hei (US 5,723,418).

Theyssen, as discussed in paragraph 3 and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates and additional additives.

Theyssen does not specifically disclose (i) an ether amine or diamine additive or (ii) a dicarboxylic acid corrosion inhibitor in the lubricating composition.

With respect to (i) above, Person Hei discloses a lubricating composition for use on conveyor systems (column 1, lines 6-18). The composition comprises an amine compound of formula $R_1-O-R_2-NH_2$ or $R_1-O-NH-R_3-NH_2$, where R_1 is a linear C_6-C_{18} , R_2 is a linear C_1-C_8 alkyl, and R_3 is a linear or branched C_1-C_8 alkyl group (column 2, lines 14-26). Either compound, when utilized in a conveyor lubricant, is shown to provide lubricity, antimicrobial character, and reduction in formation of precipitates (column 2, lines 60-67). Person Hei also discloses the ether amine as tetradecyloxypropyl-1,3-diamino propane utilized in the conveyor lubricant (Table 3, column 7). When the lubricant comprising this compound was subjected to a mild steel corrosion inhibition test, no visible signs of corrosion were produced (column 7, lines 24-50). Therefore, this compound is advantageous to a conveyor lubricating composition.

Since the scope of Theyssen is open to various additives and Person Hei discloses an amine additive with many advantages in a conveyor lubricant, it would have been obvious for Theyssen to also utilize the amines disclosed by Person Hei.

Furthermore, although Person Hei does not specifically disclose the amines as a corrosion inhibitor, they would intrinsically act as one in a lubricating composition.

With respect to (ii) above, Person Hei discloses a dicarboxylic acid corrosion inhibitor, specifically adipic or glutaric, which overlap the instantly claimed formula (column 4, lines 18-21). These specific corrosion inhibitors, when utilized in a conveyor lubricant, were shown to provide corrosion protection against mild steel and acted as an amine neutralizing agent to benefit production cost and efficiency (column 8, lines 5-29). Therefore, since Theyssen is silent as to the specific corrosion inhibitor and Person Hei discloses a specific corrosion inhibitor with various advantages in a conveyor lubricant, it would have been obvious for Theyssen to also utilize the dicarboxylic acid corrosion inhibitor.

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Person Hei (US 5,723,418) and Login (US 4,395,373).

The combination of Theyssen and Person Hei, as discussed in paragraph 9 and incorporated here by reference, disclose a conveyor lubricant comprised of ether carboxylates. Other additives are included in the composition including corrosion inhibitors, foaming agents, and chelating agents (column 14, lines 41-46 of Theyssen).

Theyssen is silent as to the specific additives utilized in the lubricant composition,

Login discloses that phosphated amine oxides can be used as corrosion inhibitors, foaming agents, and chelating agents (column 9, lines 15-22). Therefore,

Art Unit: 1714

since Theyssen is silent as to the specific additives and Login discloses one compound that can be used for the various additives disclosed by Theyssen, it would have been for Theyssen to utilize the phosphated amine oxide in the lubricant composition.

11. Claims 11, 30, 31, 35-38, 39, 40, 42-46, 49-51, 57-59, 64, 66, 67, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (WO 2004/037960 A1).

Abe, as discussed in paragraph 4 and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates with the formula $R-(OCH_2CH_2)_n-OCH_2COO-X$, where R is an alkyl group having 12 to 22, preferably 16 to 18, carbon atoms, n is from 0.3 to 15, and X is hydrogen (page 4, line 30 through page 5, line 7).

The lubricant composition disclosed by Abe is used to lubricate a belt conveyor, equipped with a sprayer system (page 1, lines 14-18). The continuous spraying of the conveyor belt with the disclosed lubricant teaches a method of lubricating a conveyor system (page 8, lines 1-3). Since the conveyor belt is continuously sprayed, it intrinsically has a plurality of spray nozzles along the conveyor system.

Abe does not specifically disclose (i) the integer n in the formula of the ether carboxylate from 6 to 1 and (ii) the ether carboxylate having 10 moles of ethoxylation.

With respect to (i) above, although Abe does not specifically disclose the integer n as 6 to 1, since the disclosed range of 0.3 to 15 overlaps, it would have been obvious to one of ordinary skill in the art to choose this specific range.

With respect to (ii) above, the ether carboxylates are disclosed as having 0.3 to 15 moles of ethoxylation, which clearly overlaps the instantly claimed 10 moles, so that it would have been obvious for Abe to utilize ether carboxylates with 10 moles of ethoxylation.

12. Claims 6-8, 33, 34, 53-55, and 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (WO 2004/037960 A1) in view of Li (US 6,214,777 B1).

Abe, as discussed in paragraphs 3 and 11 and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates and surfactants.

Abe does not disclose the specific surfactants utilized in the lubricating composition.

Li also discloses a lubricant for conveyor systems (column 1, lines 8-12). This composition is further disclosed as containing a surfactant to increase detergency and lubricity (column 6, lines 59-67). Suitable surfactants include alkoxylated alcohols having 8 to 24 carbon atoms (column 7, lines 18-25). Although Li teaches that ethoxylated alcohols are preferred, the disclosure of the invention is broad enough to encompass propoxylated alcohols.

Since Abe is silent as to the specific surfactants utilized in the conveyor lubricant composition and Li discloses that C₈ to C₂₄ alkoxylated alcohols are advantageous by providing increased detergency and lubricity, it would have been obvious for Abe to also utilize the surfactants disclosed by Li. Furthermore, although Li does not specifically

Art Unit: 1714

disclose the alkoxyated alcohols as foam destabilizers, they would intrinsically function as such in a lubricating composition.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy T. Lang whose telephone number is 571-272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ATL
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